DOCUMENT RESUME

ED 190 048 IR 008 519

AUTHOR Auster, Ethel
TITLE Linking Educators to Theory: Case Studies of Part-Time Information Consultants.
SPONS AGENCY Ontario Dept. of Education, Toronto.
PUB DATE Apr 80
NOTE 21p.: Paper presented at the Annual Meeting of the American Educational Research Association (Boston, MA, April 7-11, 1980).

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Case Studies: Consultants: Foreign Countries: *Information Retrieval: Information Services: *Online Systems: *Role Models: *User Satisfaction (Information): Use Studies
IDENTIFIERS Canada: *Educational Information Consultants

ABSTRACT

This study examines the experiences of four local educators who served as information consultants linking their clients with online bibliographic retrieval services. Four educators in different positions and settings, but in the same geographical area remote from Toronto, were trained to link their local clients with the Educational Information Center for Ontario (EISO), a centralized, online bibliographical retrieval service. A study was conducted that described the actual and ideal linkage roles, the effect of these roles on the satisfaction of clients with the information service, the conceptualization of the role in the literature compared with its implementation in the field, and the implications of the findings for the dissemination of educational knowledge. Procedures for collecting data included on-site observation, interviews, and satisfaction surveys. Analytical treatments included both qualitative and quantitative techniques. Findings included the documentation of four distinct linkage profiles--Librarian, Field Service Officer, Professor, and Coordinator. An 8-item bibliography is attached. (Author/RAA)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED190048

U S DEPARTMENT OF HEALTH,
EDUCATION & WELFARE
NATIONAL INSTITUTE OF
EDUCATION

THIS DOCUMENT HAS BEEN REPRODUCED EXACTLY AS RECEIVED FROM THE PERSON OR ORGANIZATION ORIGINATING IT. POINTS OF VIEW OR OPINIONS STATED DO NOT NECESSARILY REPRESENT OFFICIAL NATIONAL INSTITUTE OF EDUCATION POSITION OR POLICY

Linking Educators to Theory: Case Studies of Part-time Information Consultants

by

Ethel Auster

The Ontario Institute for Studies in Education

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY

Ethel Auster

TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

Paper presented at the Annual Meeting of the American Educational Research Association held in Boston, April 7-11, 1980.

This research was funded under contract by the Ministry of Education, Ontario.

IR008519

Abstract

Four educators in different positions and settings but in the same geographical area remote from Toronto were trained to link their local clients with a centralized, online bibliographic retrieval service. A study was conducted that described the actual and ideal linkage roles, the effect of these roles on the satisfaction of clients with the information service, the conceptualization of the role in the literature compared with its implementation in the field, and the implications of the findings for the dissemination of educational knowledge. Procedures for collecting data included on-site observation, interviews, and satisfaction surveys. Analytical treatments included both qualitative and quantitative techniques. Among the findings were the documentation of the emergence of four distinct linkage profiles.

Linking Educators to Theory: Case Studies of Part-time Information Consultants

INTRODUCTION

Because the educational practitioner does not usually have immediate access to the producers of educational research, there is often a considerable time lag between the discovery of innovations and their widespread use. In an attempt to alleviate this situation, it has been suggested that intermediaries be used to link the local practitioner with relevant research. Yet very little is known about the specific functions of such individuals in real field settings. Therefore, it was the purpose of this study to describe four actual cases where linkage functions were carried out; to describe the training and strategies used by linkers, called Education Information Consultants (EICs), to carry out their functions; to identify their effectiveness in terms of their clients' satisfaction; to relate these linkage strategies outlined in the literature; to draw implications for types of skills needed by linkers, the kinds of training required to develop these skills, and other supports necessary for the successful implementation of the role.

DESIGN

The Educational Information System for Ontario (EISO) project was a provincially funded research contract awarded to The Ontario Institute for Studies in Education to set up a service for Ontario educators that would retrieve and disseminate bibliographic information available through existing commercial companies and data bases in the U.S. Four local educators were chosen and trained as Educational Information Consultants, or EICs, to work with their local clientele as information intermediaries between them and the centralized online bibliographic retrieval service. These four men were the mathematics coordinator with a rural Board of Education who eventually dealt with five clients; the Librarian of a combined Faculty of Education-College of Applied Arts and Technology who also served five clients; the professor attached to one of OISE's Field Centres who worked with eight clients; and a field services officer at a Regional Office of the Ministry of Education who

dealt with four clients. Their initial training took place in Fall 1975 with a subsequent workshop held in June 1976. At the time of data collection (Winter-Spring 1977), the EICs had been functioning in their new roles for 18 months and had serviced a total of 22 clients.

The general design of this study is summarized in Table 1. First the research questions are listed. Then the sources of the data, the procedures for collecting the data, and the treatment are given. It will be noted that Questions 1 and 2 use similar types of sources and procedures and are both subjected to qualitative analysis though their substantive emphasis varies. Questions 3, 4, and 5, however, are quite distinct and different from each other as well as from the previous queries. Therefore, the treatment used is unique to each.

This study was intended to fill the lack of descriptive studies of linking agents in real field situations, a need expressed by theorists like Havelock (1973, p. 11-2, p. 11-3, p. 11-35) and Piele (1975, p. ii, p. 60) and implicit throughout Nash and Culbertson (1977). In this way, it was anticipated that it would provide a small contribution toward the building of more generalized theory. The limitations inherent in any study of this type applied equally to this specific one. Because only four examples of the EIC role are being examined, the ability to generalize from any findings were limited and applicable only to comparable settings.

TABLE 1

DESIGN OF THE STUDY

Questions to be Investigated	Sources of Data	Procedures for Collecting Data	Treatment of the Data
1. *What does the EIC do?*	EICs	Observation Interviews Local documents Project documents Training program	Qualitative analysis of data
	EICs' users	Interviews Training program Project documents	Qualitative analysis of data
2. *What should the EIC do?*	EICs	Observation Interviews Local documents Training program	Qualitative analysis of data
	EICs' users	Interviews Training program	
3. *Does the EIC affect the satisfaction level of users who are located in remote parts of the province with EISO service?*	EIC's users	Satisfaction data from EISO User Evaluation Questionnaire	One-way analysis of variance
		Interviews	Qualitative analysis of data
	Non-EICs' users	Satisfaction data from EISO User Evaluation Questionnaire	One-way analysis of variance
		Interviews	Qualitative analysis of data
4. *How does the role of the EIC as implemented in the field compare with the conceptualizations of the role found in the literature?*	Role descriptions that emerge from Questions 1-3 Relevant literatures, especially Havelock's linkage models	As outlined for Questions 1-3	Comparative analysis of findings of field experience with theoretical conceptualizations found in the literature
5. *What are the implications of the findings of this study for the dissemination of educational knowledge and the role of the EIC?*	Findings of this study	As outlined for Questions 1-4	Theory generation Practical implications

FINDINGS

The EIC Role as Implemented. It was found that the roles of each of the four EICs was broken down into preliminary activities, or how the users became aware of the availability of an EIC and who initiated the search request; the negotiation interview, when the EIC finds out what the user's problem is; formulating the search strategy, when the EIC, with or without the user, decides on the final format of the request; relaying the request, which involves the submission of the request to the search analyst; bibliography delivery, whether the computer-generated bibliography is returned to the EIC thus setting the stage for further involvement or whether it is mailed directly to the user; ordering original documents, which may lead to secondary uses of the returned fiche or paper copies; and last, follow-up activities, which may range from an informal, if any, expression of interest as to the ultimate outcome of the search, to sustained and intimate involvement in evaluating materials received, discussing alternative action plans, planning and/or taking part in the ultimate use of the information.

Examination of EIC activities reveals that there is a progression in terms of degree of involvement among the four EICs. Proceeding from least to most involvement, the ordering of the EICs starts with the field services officer, proceeds on to the Librarian, the coordinator, and last, the professor. They are treated in this order below.

The field services officer estimated that he had spent a total of 3½ hours being an EIC in the 18 months that he had held the position.* His searches usually arose at the instigation of the user who left a note requesting a search. Negotiation interviews, if they took place at all, tended to be brief, "on the run" as it were. The EIC made a conscientious attempt to formulate search strategies from the meagre information supplied him and when possible, in between travel plans, he tried to verify his interpretation of the information problem with the user. With the relaying of the request to the search analyst by his secretary, the EIC's involvement ceased.

*This compared with totals of 7, 10, and 30 hours spent by the Librarian, coordinator, and professor, respectively.

The Librarian's involvement with his users was somewhat more substantial. He took the initiative in suggesting searches to potential users when, as a result of his committee work or informal discussions with colleagues, he became aware of circumstances that might benefit from a search. He would have a leisurely negotiation interview with his user, often checking local resources to verify meanings of descriptors. After further time spent formulating a search strategy, he would submit the request to the analyst and, unlike the field services officer, have the bibliography mailed directly to himself. This would allow him to engage in further activities with the user. Although he did not discuss the value of the items listed on the bibliography, he did order and pay for original documents that the user chose. His only further involvement with the user, after ensuring that the ordered documents had arrived, was of an informal nature, usually in the hallway or over coffee in the cafeteria.

The coordinator made extensive efforts to publicize the search service and to make potential users aware of his new role. Having laid the groundwork, he left the initiative to place a search with the user. When a user did approach him, he spent a considerable length of time in a negotiation interview helping the user sort out his thoughts, assign priorities to his needs, and define a searchable problem. He took equal care in explaining the format of the bibliography to the user. He differed most from the two EICs considered thus far in that he actually reviewed the citation abstracts with the user, helping him to select items for ordering. He stopped short, however, of analyzing the original documents for the user, though he did submit orders and pay for them. The only other follow-up activities he took part in were those related to committees with which he was directly associated as a member or chairman.

The Professor evolved the most complex EIC role. In fact, he consciously practised three different types of behavior. Type I was characterized by total, intense involvement with the user at every stage of the search process. The recipients of this attention were graduate students in the Professor's courses who had major curriculum decision-making responsibilities in their jurisdictions and who had been associated with the professor (or could expect to be) for many years. They received extensive introductory sessions on automated retrieval, took part in lengthy negotiation interviews, but most important--and different from any other EIC's users--they were provided with expert analyses

and syntheses of the material that was returned. In addition to critically evaluating articles, the EIC helped users to relate what was contained in the information to their own situation and continued his involvement through the utilization of the information.

For those students who had been admitted to his course but were not involved in curriculum development projects in their boards, the professor practised a somewhat modified (Type II) version of his EIC role. He expended the same efforts in the introductory and intermediate phases of the search process, but did not engage in any follow-up activities. Type III behaviors were shown to all other Region 3 school board users. They were handled by the EIC's secretary at the Field Centre who provided them with instructions for using the service and referred them directly to the analyst.

A summary of the component elements of the roles as developed is presented in Table 2. From these brief tabular descriptions, taken in conjunction with the activities outlined above, several things become clearly apparent. We see that, though similar training was given to all four men, each succeeded in evolving a fairly distinct role. Training then, though important, was not the only or even most important determining factor in the way the role was implemented. Personal experience, education, and situational factors each exerted significant influences on the final role configuration. For example, the work styles and pressures within the regional office of the Ministry of Education precluded the EIC there from having in-depth negotiation interviews with his clients; the norms of the Librarian's position in his organization were not conducive to the development of extensive follow-up activities; and the personal interests and academic background of the professor allowed him to practice a wide array of group process skills within an extensive theoretical framework with some users, while his autonomous position allowed him to have minimal involvement with others.

The Ideal EIC Role. There does not seem to be a single "right" or "wrong" way of being an EIC, nor does there seem to be one ideal EIC role. The ideal EIC seems to be the one who meets the needs of his particular users. Users, however, are not a homogeneous lot. Within a school board especially, certain distinct user groups may be differentiated.

TABLE 5

ROLE PROFILES OF EDUCATIONAL INFORMATION CONSULTANTS

EIC / Search Dimensions	Preliminary Activities	Negotiation Interview	Formulating the Search Strategy	Relaying the Request	Bibliography Delivery	Ordering Original Documents	Follow-up Activities
Librarian	Publicity via memos, staff meetings, chance encounters. Searches arise through initiative of EIC.	Lasts 30 mins. in EIC's office. EIC and user define topic, choose descriptors, check RIE, CIJE Thesaurus.	Lasts 30 mins. EIC lists descriptors, may call analyst for guidance.	Submitted by EIC	Sent to EIC who relays it with personal note to user.	EIC submits orders for user.	Informal expression of interest.
Field Services Officer	Publicity via memos, staff meetings. Searches arise when user requests one by a note to EIC.	When they occur, they last 3-10 mins.	Last 10-30 mins. EIC lists descriptors, checks Thesaurus, may verify strategy with user.	Submitted by EIC's secretary.	Sent to user.	User does ordering.	Informal expression of interest.
Professor	Type I Publicity via consultancy activities, graduate courses. Searches arise as class requirement at EIC's instigation.	Lasts 30-45 mins. EIC meets with individuals and small groups before class.	Part of previous phase. EIC verifies students' choice of descriptors using Thesaurus.	Submitted by EIC's secretary.	Sent to EIC who reviews it independently (120 mins. approx.) and then compares notes with user (further 120 mins.) Copy is filed at EIC's office.	EIC's secretary submits orders for user after EIC and user have jointly chosen documents. Original documents are duplicated and kept in EIC's resource file.	Up to 5 hrs. spent by EIC with user critically evaluating materials received. Further 2-5 hrs. spent by EIC and user discussing results. Continued involvement of EIC in implementation and evaluation phase of curriculum projects.
	Type II Same as Type I	Same as Type I	Same as Type I	Same as Type I	Same as Type I	None	None
	Type III No publicity by EIC. Searches arise through user's initiative. EIC's secretary dispenses instructions on using service.	User negotiates directly with search analyst.	User or analyst formulates strategy.	User relays request.	Sent to user.	User does ordering.	None
Coordinator	Publicity via Curriculum Advisory Committee, Principals' Association, curriculum writing groups. Searches arise through user's initiative.	Lasts up to 60 mins. in EIC's or user's office. EIC and user define problem, prioritize and cluster descriptors using Thesaurus.	EIC formulates final strategy himself.	Submitted by EIC's secretary.	Sent to EIC who explains format, helps user select items for ordering.	EIC submits orders for user. EIC delivers original documents to user.	None, except for CAC involvement.

The classroom teacher uses information resources far less than the administrator. His chief concerns revolve around the daily operation of his classroom. The people he relates to most comfortably are other teachers within his building, his department head, principal or coordinator. For him, any one of these would make an appropriate, and necessary, intermediary. A senior academic, on the other hand, generally would not. Teachers would perceive him as being intellectually as well as geographically too remote from their immediate concerns. Board administrators, however, given the norms of the educational hierarchy, could not be expected to approach subordinates for help with their information problems. From their leadership styles, one would expect administrators to consult other senior officials or go directly to the search analyst, obviating the necessity for an EIC altogether. This has indeed been the case during this study, notably with the Director in the coordinator's board. Thus we see that the placement of the EIC role is an important issue, and must take into consideration the normal behavior patterns of the client group.

Position alone, though, is not enough. All users, regardless of organizational affiliation, emphasized certain personal traits they considered essential in an EIC. He must have initiative, a broad range of interests, a genuine concern for people, and an ability to relate to people at all levels of the educational system. Further, he must have considerable practical experience, and be aware of educational priorities and problems. Of course, he must be knowledgeable about the information system that he is working with and be able to communicate that knowledge to the user. All users agreed that the person would make the job. The only area that provided some disagrement was the extent to which the EIC should be involved in follow-up activities centering around the utilization of the knowledge obtained. The greater the subject expertise of the user, the less was his need for the EIC. In fact, one of the EIC's most essential functions was to introduce first-time users to the intricacies of automated searching. Experienced users tended to rely on the search analyst exclusively.

These findings are important in preventing the novice EIC from being disheartened when his "old customers" no longer use his services. It also suggests that more than one EIC be trained within a school system so that

the needs of different user groups can be more effectively met. Analogous arguments for multiple EICs may be made for other large institutions such as community colleges and faculties of education.

Satisfaction Levels of Users. The continued use of an information service as well as subsequent use of the information retrieved depend to a large extent on the satisfaction of the user with the service and materials he receives. It has been assumed that the provision of intermediaries between inexperienced and/or geographically removed users and a central information service would increase the satisfaction levels of users by providing them with a human interface, sympathetic to their local needs and knowledgeable about accessing automated information.

This study found that there is indeed a slight tendency for EISO users to be more satisfied when they go through an EIC than when they do not. The differences in mean satisfaction, however, tended to be slight and applied only to certain phases of the search process. These areas of greater mean satisfaction focussed on the publicity about and directions for using the service and the quality of the technology. Those phases that revolved around ordering and delivery of documents did not significantly benefit from the attentions of an EIC. Since the EIC's role seemed to be most useful in the early stages of raising awareness about the service and providing instruction for its use, it was suggested that the other stages--the search negotiation and document ordering and delivery--be left to the search analyst and user respectively.

At least two types of extreme cases surfaced during interviews in the field with users who had gone through EICs: the example of the experienced subject expert who felt he could gain little additional knowledge about the information system or his field of interest by going through an EIC, and the senior board administrators whose leadership styles precluded their seeking resolution to their problems through intermediate and subordinate channels.

Implementation vs. Conceptualization of the Role in Literature. Consideration of role theory, change and innovation in education, and works bearing on the EIC, as well as the utilization of knowledge in education led

to a number of conclusions: that the literature was abundant, it was highly diverse, and limited in its applicability; it consisted primarily of unrelated and unevaluated studies of uneven quality; it lacked a coherent conceptual framework; its direct relevance to the Canadian situation was questionable. With all of these drawbacks, however, two studies were considered to be seminal to the field: The Use of Educational Knowledge by Sam Sieber et al (1972) and Planning for Innovation Through Dissemination and Utilization of Knowledge by Ronald G. Havelock (1973).

Sieber described the roles intended for the field agents involved in the Pilot State Dissemination Program as follows:

> In each state field agents, as they are called in our report, were to meet with prospective clients within the designated target areas, identify their need or problem, refer this need to a retrieval staff located in the state education agency who would perform either computer or manual searches, receive the information (in the form of abstracts, microfiche, bibliographies, hard copy, or even technical assistance) and delivery it to the client--all within as short a time as possible. The field agents were also generally expected to help clients to interpret or adapt the information that was delivered, to appraise its applicability, and to consider the needed steps for use or implementation, and perhaps even help with implementation. In addition to this informational function, it was understood that field agents might try to improve lateral communication between districts, consult in their own specialty, inaugurate teacher workshops or self-renewal activities, and so forth. The technical assistance of SEA staff was also to be enlisted. (Sieber, 1972, p. 8)

It will be noted that several significant differences exist between Sieber's field agents and EISO's EICs. First, Sieber's intermediaries were more numerous and employed on a full-time basis in three states, whereas there were four EICs located in one region who had their new function added on to their current roles. Second, the field agents were external to the organizations they dealt with, the EICs (with the exception of the professor) internal to the organization that hired their users. Third, the Sieber agents were externally funded, the EICs salaried staff members of their own organizations. There was, however, an important similarity between the field agents and the EICs: both groups tended to be generalists rather than specialists. This allowed them wider access to staff and prevented them from the pitfalls of tunnel-vision.

Generally, the Sieber study shows a more direct positive relationship between the provision of field agents and the adoption of changes into the schools. This study is more cautious and tentative in attributing wide-sweeping innovations to the efforts of EICs. For one thing, insufficient time has elapsed to make such assertions with certainty.

With regard to the implementation of the roles themselves, the issues that surfaced with the field agents bore a marked resemblance to those that concerned the EICs. Both sets of intermediaries experienced some difficulty at the preliminary and follow-up stages of their activities. They were uncertain about accepting the users' version of his problem or becoming engaged in diagnostic activities, and they were even more confused about the degree to which they should become involved in follow-up activities, in promoting innovation, and in helping with self-renewal. Both groups felt some uncertainty about whether they were under-cover "change agents" or simply information deliverers. This conflict was more acutely felt by Sieber's agents since they all engaged in screening the original documents for relevance and feasibility--a critical step required before becoming more deeply involved in the utilization of knowledge and implementation activities.

Whereas Sieber documented the activities of intermediaries as they occurred in the field, Havelock and his associates created a typology of linking roles gleaned from an extensive analysis of prevailing theories. He came up with nine different, though not necessarily mutually exclusive, role types for change agents: conveyor, consultant, trainer, leader, innovator, defender, knowledge-builders as linkers, practitioner as linker, and user as linker. These types, he cautioned, were:

> ...all somewhat fictional, something on the order of "ideal types." When we look at the linker in vivo we find that he is a mixture, playing several roles in sequence and simultaneously, and indeed sometimes not playing the linker at all. (Havelock, 1973, p. 7-2)

Indeed, each of the EICs shows characteristics that belong to at least two role types and their combined functions encompass at least five different classifications. These include those of conveyor, consultant, trainer, leader, and knowledge-builder. Havelock's descriptions of these terms, given below, make their applicability to the four EICs readily apparent.

The conveyor is the simplest linker concept and applies to "one who takes knowledge from expert sources and passes it on to non-expert potential users." (Ibid, p. 7-3). The knowledge may take a variety of forms but is usually transmitted with little or no change. The linker may be external to the organization. The most obvious examples of it are the salesman or county extension agent in agriculture. Often this role suffers from low status that hampers its effectiveness.

The consultant is "a facilitator, helper, objective observer, and specialist in how to diagnose needs, how to identify resources, and how to retrieve from expert sources." (Ibid, p. 7-6). He is usually external to the agency, responds to user-initiated requests, operates in an advisory capacity with little or no responsibility for implementation. The role is most often exemplified by mental health consultants and "change agents" of the National Training Laboratory.

The trainer usually functions as a teacher, inculcating new knowledge and skills before the practitioner enters or returns to the work setting. His position gives him authority to use coercive or reinforcing techniques. The most common holder of this position is the "professor of practice" (Ibid, p. 7-10). Normally the trainer's involvement ends when the training period is over.

The leader is seen as internal to the user's own group. He may be an administrator, or supervisor, but is regarded as being "one of us," a "sort of funnel through which all information comes to the users." He is an opinion-leader who is "above all a legitimator of new ideas and practices." (Ibid, p. 7-10, and p. 7-13).

A comparison of these role types suggests that the Librarian and field services officer EICs correspond most closely to the conveyor/trainer/knowledge builder amalgam, and the coordinator to a conveyor/leader combination. One could further argue that some of the EICs also displayed characteristics that Havelock attributes to the practitioner and user as linker, and moreover, that these role types tended to shift in importance with different stages of the information process as well as different clients. At this point it becomes obvious, then, that Havelock's own point about the limited adequacy of his role types to describe real situations is well taken.

Indeed, this study has shown that these in vivo intermediaries play parts whose complexity cannot yet be adequately captured wholly or exclusively by extant classification schemes. What may be needed are some higher level concepts such as the types of authority mentioned earlier.

DISCUSSION AND IMPLICATIONS

This section discusses the fifth and last question posed at the beginning of this research, concerning the implications of the findings for the dissemination of educational knowledge and the role of the EIC. With regard to the relevance of the findings to the role of the EIC, three specific issues are considered: selection, training, and the role itself. A final section discusses the findings of the study in relation to theory.

Selection.--Who is the EIC going to serve? The answer to this question will affect to a large extent the selection of the person to be the EIC. For example, there is evidence to show that administrators will tend not to approach subordinates in their information-seeking behavior. Evidence has also shown that being an insider of a group but also a leader of that group increases the potential effectiveness of implementing new ideas. Position and the authority relationship implied by that position then, are of obvious importance in choosing an EIC.

In addition, users themselves have described the type of EIC who in their opinion and for their situations was the ideal EIC. The EIC, according to them, must have an impressive array of personal and intellectual characteristics: he must have initiative, concern for people, and a broad range of interests, he must be able to relate to people at all levels of the educational hierarchy; and he must have had extensive practical experience, preferably as a generalist rather than a specialist. As well, he must be knowledgeable about the information system he is working with and have the ability to convey this knowledge to others. Havelock and Havelock (1973, p. 187-203) present in detail the desired attributes of change agents. Many of these would apply in varying measure to the different roles of EICs. As the qualities required for the position become more varied, numerous, and complex, the possibility of selecting one individual who

shows all of them becomes increasingly remote. One solution may lie in opting for teams of people with different qualifications. Regardless of who is chosen or how many, however, the potential EICs are going to have to be trained.

Training.--The obvious question that arises is, training for what? Again this study shows that there is no single EIC role and that, therefore, different degrees and types of training may be necessary to meet the requirements of different responsibilities. Although it is beyond the scope of this study to develop detailed curricula for separate training programs, careful evaluation of the training program for the EISO project and the subsequent implementation of the EIC role revealed a number of concerns that may help improve the training of other EICs.

It was found that all the EICs desired to compare their initial experiences in the field and have the opportunity to pool and compare their methods with their fellow EICs; all wished to engage in role-playing as EIC and user; none felt comfortable constructing formal detailed search strategies using Boolean logic and preferred to leave this aspect of the search to the search analyst's expertise; all but the professor felt inadequately prepared to carry out intensive follow-up activities; most were uncertain about the place of their information provision function in the general scheme of change processes; and most needed reassurance, positive feedback, and support from central project staff that they were indeed fulfilling their roles adequately.

These findings imply that some modifications are necessary in the training program used for the four EICs if it is to be more effective in the future. Greater emphasis should be placed on role-playing so that the EIC has the opportunity to simulate field experiences with users. Training should occur not only prior to implementing the role, but should be continued with follow-up workshops and seminars after the EIC is operating in the field. Opportunities should be provided for the EICs to compare notes with their fellow intermediaries and to check out their progress and perceptions with them and central staff. Principles of constructing search strategies should be explained, but EICs should

not be expected to submit search strategies unless they wish to do so. More emphasis should be placed on conducting follow-up activities so that EICs feel more competent in this phase of information provision.

Areas for concentration might include elements of program planning, research and evaluation techniques, organization development, processes of change and innovation, theories and strategies for the dissemination and utilization of information. It is recognized, however, that not all EICs would require skills in these areas. For example, the librarian and field services officer both felt that their involvement beyond the information delivery stage would have been inappropriate. Thus, these experiences of EICs in the field point to the necessity of different degrees and types of training for different types of EICs. Furthermore, the necessity for some of these skills may not become obvious until some field work haw been engaged in by the EICs. This condition again points up the importance of having continued training opportunities available.

Role.--The basic assumption in the literature is that the role of an intermediary between the resource producer and the user system is a valuable one. The studies that give rise to this view, such as Havelock's (1973) and Sieber's (1972) tend to view the EIC as a type of change agent. This study did not directly prescribe a change agent role for EICs but rather provided some basic skills for information intermediaries to function in the field. After a period of 18 months, it was found that four distinct roles had emerged, only one of which (the professor's) could be regarded as a full-blown change agent's role.

Further, it was found that the roles that emerged were not equally suitable to the needs of all users. Senior administrators, repeat users and highly trained subject specialists were less likely to avail themselves of an EIC than members of the EIC's peer group and first-time users. The EICs themselves tended to evolve roles that reflected their own capabilities, the norms of the setting, and their users' expectations. But no matter how proficient they were in their roles or how receptive their users were in general, all the EICs experienced some barriers to the effective implementation of their role. These constraints arose from

shortcomings in the EIC (less than adequate training), the setting (organizational idiosyncracies), and the user (inadequate information perception, differential needs). The ambiguity of the role to be implemented also sometimes strained the otherwise considerable tolerance of the professionals who were the EICs of this study.

Theory.--It has already been pointed out that there is no coherent theoretical framework that is totally applicable to the EIC role. The literature that seems to offer most insight treats models of change and adoption of innovations. As Fullan and Pomfret (1977) point out, however, this literature is fraught with definitional problems. The problems that plague the relatively well-established fields of change and innovation are even more evident in the newer field of knowledge dissemination in education. For one thing, there is no clear understanding of what an EIC is or what he should do or how he can be judged to be effective. Most theoreticians rely on change models to provide criteria. But change models generally deal with installing changes or products and rely on agents external to the recipient organization. The EICs of this study did not deal with "products" as they are commonly understood, nor (except for the professor) were they outsiders.

CONCLUSION

It is not the intention of, nor would it be appropriate for, this study which examines the experiences of four individuals and their users to make generalizations for the field as a whole. It can be said, however, that distinct roles did emerge, that these different roles were deemed to be effective by the EICs' users, and that therefore any theory or theories that do ultimately evolve should encompass and help to account for these findings.

Bibliography

Auster, E. Educational information consultants: Case studies of part-time knowledge linkers. Doctoral dissertation, University of Toronto, 1978.

Fullan, M., and Pomfret, A. Research on Curriculum and Instruction Implementation. Review of Educational Research, 1977, 47 (2), 335-397.

Havelock, R.G. Planning for Innovation through Dissemination and Utilization of Knowledge. Ann Arbor, Michigan: Center for Research on Utilizatin of Scientific Knowledge, 1973.

Havelock, R.G., and Havelock, M.C. Training for Change Agents. Ann Arbor, Michigan: Center for Research on Utilization of Scientific Knowledge, 1973.

Louis, Karen Seashore, and Sieber, Sam Dixon. Bureaucracy and the Dispersed Organization: The Educational Extension Agent Experiment. Norwood, N.J.: Ablex Publishing, 1979.

Nash, N. and Culbertson, J. Linking Processes in Educational Improvement. Columbus, Ohio: University Council for Educational Administration, 1977.

Piele, P.K. Review and Analysis of the Role, Activities, and Training of Educational Linking Agents. Eugene, Oregon: ERIC Clearinghouse on Educational Management, 1975.

Sieber, S.D.; Louis, K.S.; and Metzger, L. The Uses of Educational Knowledge. (2 vols.) New York: Columbia University Bureau of Applied Social Research, 1972.